1. AC Voltage Sensor

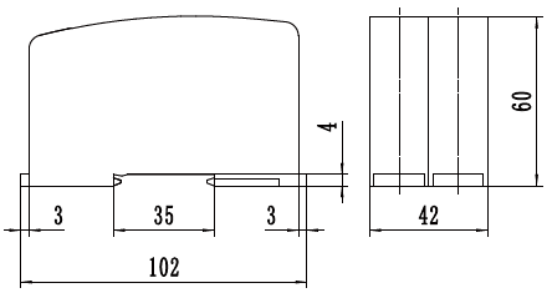
1.1 SKU: ATO-VOS-AC500

AC voltage transducers are input/output/power supply isolated voltage transducers, with measuring range from 10V/50V/100V/200V/300V to 500V, wide power supply voltage AC/DC 85V~265V, work temperature -25~+70℃, frequency range 25Hz ~ 1kHz, and strong anti-interference capability.

Specification:

Model	ATO-WBV412H29	ATO-WBV414H29
Measuring range	AC 0-10V ~ 0-500V	AC 0-10V ~ 0-500V
Short-time overload	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times
Linear measurement range	0% ~ 120% measuring range	0% ~ 120% measuring range
Frequency range	25Hz ~ 1kHz	25Hz ~ 1kHz
Output signal	DC 0-5V, 0-10V, 1-5V	DC 4-20mA, 0-20mA
Power supply	AC/DC 85V~265V	AC/DC 85V~265V
Accuracy	0.2%F.S.	0.5%F.S.
Load capacity	6mA	≤500Ω
Response time	≤200ms	≤200ms
Temperature drift	350*10-6/℃	350*10-6/℃
Output ripple voltage	≤10mV	≤10mV
Isolation features	Isolation between input, output and power supply	Isolation between input, output and power supply
Isolation voltage	Input and output: DC 2.5kV, 1min Power supply and input: DC 2.5kV, 1 min Power supply and output: DC 2.5kV, 1 min	Input and output: DC 2.5kV, 1min Power supply and input: DC 2.5kV, 1 min Power supply and output: DC 2.5kV, 1 min
Work temperature	-25~+70℃	-25~+70℃
Storage temperature	-40~+85℃	-40~+85℃
Protection features	EMC standards: EN61326: 2006 Safety standards: EN60100:2001	EMC standards: EN61326: 2006 Safety standards: EN60100:2001
Mean time between failures	＞50000h	＞50000h
Housing material	Fire-retardant ABS	Fire-retardant ABS
Wiring	Terminal connection	Terminal connection
Installation	DIN rail (NS35/7.5, NS35/15, EN50022)	DIN rail (NS35/7.5, NS35/15, EN50022)

Dimensional drawing (unit: mm) & wiring diagram:



1. AC Voltage Sensor

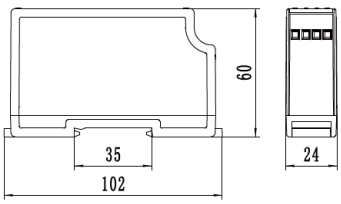
1.2 SKU: ATO-VOS-AC1000

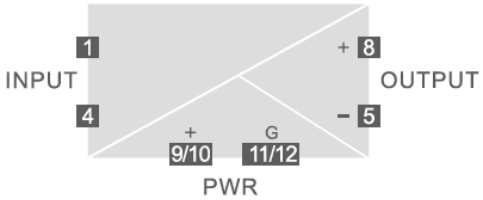
AC voltage sensors have voltage measuring range from 10V, 50V, 100V, 200V, 500V, 800V to 1000V, supply voltage DC 9V~36V and good EMC design. Voltage sensors have two installation methods, DIN rail installation and M3 screw fixation.

Specification:

Model	ATO-WBV412M05	ATO-WBV414M05
Measuring range	AC 0-10V ~ 0-1000V	AC 0-10V ~ 0-1000V
Short-time overload	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times
Linear measurement range	0% ~ 120% measuring range	0% ~ 120% measuring range
Frequency range	25Hz ~ 3kHz	25Hz ~ 3kHz
Output signal	DC 0-5V, 0-10V (only for power supply DC 24V), 1-5V	DC 4-20mA, 0-20mA
Power supply	DC 9V~36V	DC 9V~36V
Accuracy	0.2%F.S.	0.2%F.S.
Load capacity	5mA	300Ω
Response time	≤300ms	≤300ms
Temperature drift	100*10-6/℃	100*10-6/℃
Static power consumption	0.6W	0.6W
Output ripple voltage	≤10mV (RMS)	≤10mV (RMS)
Isolation features	Isolation between input, output and power supply	Isolation between input, output and power supply
Isolation voltage	Input and output: DC 2.5kV, 1min Power supply and input: DC 2.5kV, 1 min Power supply and output: DC 2.5kV, 1 min	Input and output: DC 2.5kV, 1min Power supply and input: DC 2.5kV, 1 min Power supply and output: DC 2.5kV, 1 min
Work temperature	-25~+70℃	-25~+70℃
Storage temperature	-40~+85℃	-40~+85℃
Protection features	EMC standards: EN61326: 2006 Safety standards: EN60100:2001	EMC standards: EN61326: 2006 Safety standards: EN60100:2001
Mean time between failures	＞50000h	＞50000h
Housing material	PC + Fire-retardant ABS	PC + Fire-retardant ABS
Wiring	Terminal connection	Terminal connection
Installation	DIN rail (NS35/7.5, NS35/15, EN50022), or screw (M3) fixation	DIN rail (NS35/7.5, NS35/15, EN50022), or screw (M3) fixation

Dimensional drawing (unit: mm) & wiring diagram:





2. Three Phase AC Voltage Sensor

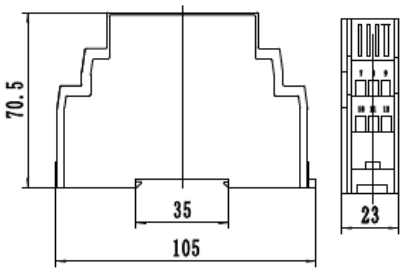
SKU: ATO-VOS-3AC500

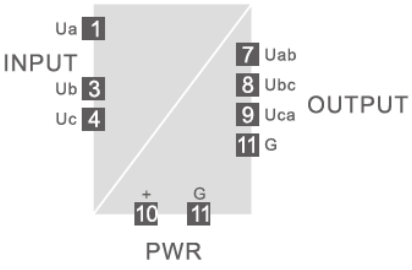
3 phase AC voltage transducer has supply voltage DC 12V/24V, output signal DC 0-5V/0-20mA/4-20mA. 3 phase voltage transducer is mainly used for power monitoring, power control and dispatching systems.

Specification:

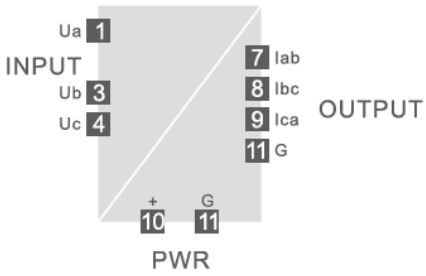
Model	ATO-WBV412M05	ATO-WBV414M05
Measuring range	3 phase AC 0-10V ~ 0-500V	3 phase AC 0-10V ~ 0-500V
Short-time overload	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times
Linear measurement range	0% ~ 120% measuring range	0% ~ 120% measuring range
Frequency range	25Hz ~ 1kHz	25Hz ~ 1kHz
Input impedance	Ri=2/3(Ux*1kΩ/V)	Ri=2/3(Ux*1kΩ/V)
Output signal	DC 0-5V	DC 4-20mA, 0-20mA
Power supply	DC 12V, 24V	DC 12V, 24V
Accuracy	0.5%F.S.	0.5%F.S.
Load capacity	5mA	6V
Response time	≤300ms	≤300ms
Temperature drift	250*10-6/℃	350*10-6/℃
Static current	≤8mA	Output 0-20mA: ≤12mA Output 4-20mA: ≤35mA
Isolation features	Isolation between input and output, output terminals provides power supply	Isolation between input and output, output terminals provides power supply
Isolation voltage	DC 2.5kV, 1min	DC 2.5kV, 1min
Work temperature	0~50℃	0~50℃
Storage temperature	-25~+70℃	-25~+70℃
Protection class of housing	IP20	IP20
Mean time between failures	＞50000h	＞50000h
Housing material	Fire-retardant ABS	Fire-retardant ABS
Wiring	Terminal connection	Terminal connection
Installation	DIN rail (NS35/7.5, NS35/15, EN50022)	DIN rail (NS35/7.5, NS35/15, EN50022)

Dimensional drawing (unit: mm) & wiring diagram:





Output: 0-5V



Output: 0-20mA/4-20mA

3. DC Voltage Sensor

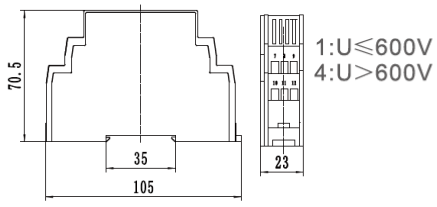
3.1 SKU: ATO-VOS-DC1000

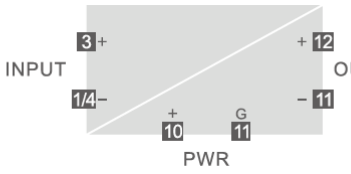
DC voltage sensor has measuring range from DC 10mV, 50mV, 75mV, 5V, 150V, 300V, 500V to 1000V, supply voltage DC 12V/24V, output signal 0-5V, 0-10V, 0-20mA, 4-20mA. DC voltage sensor is widely used for voltage isolated measuring and control, such as electric power, remote monitoring, medical equipment, etc.

Specification:

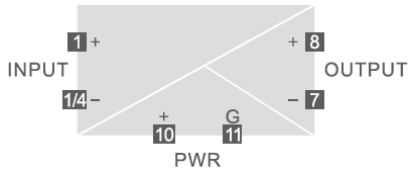
Model	ATO-WBV342U01-S	ATO-WBV342U05-S	ATO-WBV344U01-S	ATO-WBV344U05-S
Measuring range	DC 0-10mV ~ 0-1000V			
Short-time overload	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times			
Linear measurement range	0% ~ 120% measuring range			
Input impedance	When Ux＞1V, Ri=Ux*10kΩ/V; when Ux≤1V, Ri≥1MΩ			
Output signal	DC 0-5V, 0-10V (only for power supply DC 24V)		DC 0-20mA, 4-20mA	
Power supply	DC 12V, 24V	DC 12V, 24V	DC 12V, 24V	DC 12V, 24V
Accuracy	0.2%F.S.	0.2%F.S.	0.2%F.S.	0.2%F.S.
Load capacity	10mA	10mA	≤300Ω	≤300Ω
Response time	≤150ms	≤150ms	≤150ms	≤150ms
Temperature drift	200*10-6/℃	200*10-6/℃	200*10-6/℃	200*10-6/℃
Static current	≤12mA	≤30mA	Output 0-20mA: ≤16mA Output 4-20mA: ≤20mA	Output 0-20mA: ≤16mA Output 4-20mA: ≤20mA
Isolation features	Isolation between input and output, output terminals provides power supply	Isolation between input, output and power supply	Isolation between input and output, output terminals provides power supply	Isolation between input, output and power supply
Isolation voltage	DC 2.5kV, 1mA, 1min			
Work temperature	-25~+70℃			
Storage temperature	-25~+70℃			
Protection features	Surge: 2kV, Electrostatic discharge: 6kV/8kV, Electrical fast transient burst: 2kV			
Mean time between failures	＞50000h			
Housing material	Fire-retardant ABS			
Wiring	Terminal connection			
Installation	DIN rail (NS35/7.5, NS35/15, EN50022)			

Dimensional drawing (unit: mm) & wiring diagram:





Isolation between: I & O



Isolation between: I, O & P

3. DC Voltage Sensor

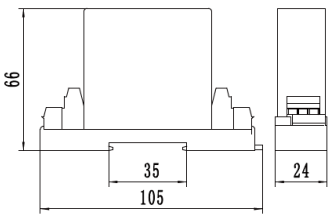
3.2 SKU: ATO-VOS-BDC1000

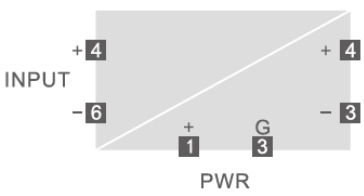
DC voltage sensor with supply voltage DC 12V/15V/24V is a special voltage sensor for bidirectional voltage tracking. The measuring range of input voltage is from ±50mV, ±50V, ±200V, ±500V to ±1000V. The output signal can be DC 2.5±2.5V, 5±5V, 12±8mA, or 10±10mA.

Specification:

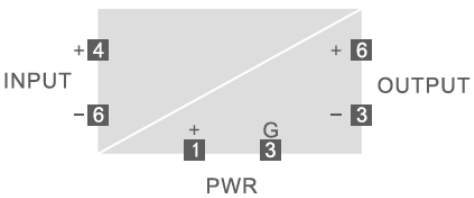
Model	ATO-WBV151S01	ATO-WBV153S01
Measuring range	DC ±50mV ~ ±1000V	DC ±50mV ~ ±1000V
Short-time overload	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times
Linear measurement range	0% ~ 120% measuring range	0% ~ 120% measuring range
Input impedance	When Ux＞1V, Ri=Ux*10kΩ/V; when Ux≤1V, Ri≥1MΩ	When Ux＞1V, Ri=Ux*10kΩ/V; when Ux≤1V, Ri≥1MΩ
Output signal	DC 2.5±2.5V, 5±5V	DC 12±8mA, 10±10mA
Power supply	DC 12V, 15V, 24V	DC 12V, 15V, 24V
Accuracy	0.2%F.S.	0.2%F.S.
Load capacity	5mA	6V
Response time	≤15μs	≤100ms
Temperature drift	160*10-6/℃	350*10-6/℃
Static current	≤30mA	≤33mA
Isolation features	Isolation between input and output, output terminals provides power supply	Isolation between input and output, output terminals provides power supply
Isolation voltage	DC 2.5kV, 1min	DC 2.5kV, 1min
Work temperature	-25~+70℃	-25~+70℃
Storage temperature	-25~+70℃	-25~+70℃
Protection class of housing	IP20	IP20
Mean time between failures	＞50000h	＞50000h
Housing material	Fire-retardant ABS	Fire-retardant ABS
Wiring	Terminal connection	Terminal connection
Installation	DIN rail (NS35/7.5, NS35/15, EN50022), or screw (M3) fixation	DIN rail (NS35/7.5, NS35/15, EN50022), or screw (M3) fixation

Dimensional drawing (unit: mm) & wiring diagram:





Output: 0-5V



Output: 0-20mA/4-20mA

3. DC Voltage Sensor

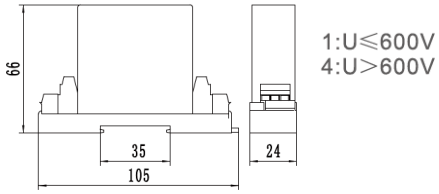
3.3 SKU: ATO-VOS-RDC1000

DC voltage sensor is special for ripple voltage measurement. It has a measuring range from DC 10mV, 50mV, 75mV, 5V, 150V, 300V, 500V to 1000V, output signal 0-5V, 0-10V, 0-20mA, 4-20mA, supply voltage DC 12/24V. Isolated DC voltage transducer can achieve input/output/power supply isolation.

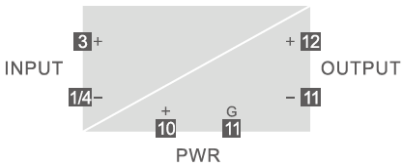
Specification:

Model	ATO-WBV332U01-S	ATO-WBV332U05-S	ATO-WBV344U01-S	ATO-WBV344U05-S
Measuring range	DC 0-10mV ~ 0-1000V			
Short-time overload	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times			
Linear measurement range	0% ~ 120% measuring range			
Input impedance	When Ux＞1V, Ri=Ux*10kΩ/V; when Ux≤1V, Ri≥1MΩ			
Output signal	DC 0-5V, 0-10V (only for power supply DC 24V)		DC 0-20mA, 4-20mA	
Power supply	DC 12V, 24V	DC 12V, 24V	DC 12V, 24V	DC 12V, 24V
Accuracy	0.2%F.S.	0.2%F.S.	0.2%F.S.	0.2%F.S.
Load capacity	10mA	10mA	≤300Ω	≤300Ω
Response time	≤350ms	≤350ms	≤350ms	≤350ms
Temperature drift	200*10-6/℃	200*10-6/℃	200*10-6/℃	200*10-6/℃
Static current	≤12mA	≤30mA	Output 0-20mA: ≤16mA Output 4-20mA: ≤20mA	Output 0-20mA: ≤16mA Output 4-20mA: ≤20mA
Isolation features	Isolation between input and output, output terminals provides power supply	Isolation between input, output and power supply	Isolation between input and output, output terminals provides power supply	Isolation between input, output and power supply
Isolation voltage	DC 2.5kV, 1mA, 1min			
Work temperature	-25~+70℃			
Storage temperature	-25~+70℃			
Protection features	Surge: 2kV, Electrostatic discharge: 6kV/8kV, Electrical fast transient burst: 2kV			
Mean time between failures	＞50000h			
Housing material	Fire-retardant ABS			
Wiring	Terminal connection			
Installation	DIN rail (NS35/7.5, NS35/15, EN50022)			

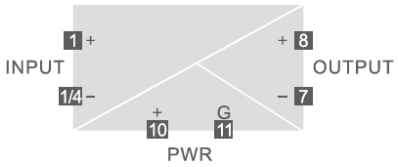
Dimensional drawing (unit: mm) & wiring diagram:



1:U≤600V
4:U>600V



Isolation between: I & O



Isolation between: I, O & P

4. AC/DC Voltage Sensor

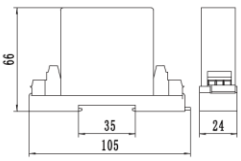
SKU: ATO-VOS-ACDC500

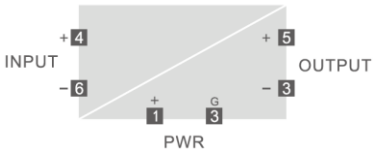
Voltage sensor has voltage measuring range from AC/DC 75mV, 50V, 100V, 250V, 300V to 500V, supply voltage DC 12V/24V, output DC voltage/current or True RMS voltage/current signal 0-5V/0-10V/0-20mA/4-20mA. AC/DC voltage sensor has two installation methods, DIN rail installation and M3 screw fixation.

Specification:

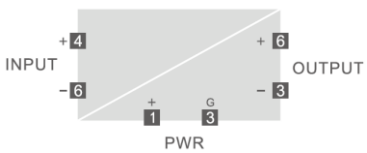
Model	ATO-WBV122S01	ATO-WBV124S01	ATO-WBV125S01	ATO-WBV127S01
Measuring range	AC/DC 0-75mV ~ 0-500V			
Short-time overload	2 times of nominal input voltage, 1s in duration, interval time 10s, repeat 10 times			
Linear measurement range	0% ~ 120% measuring range			
Frequency range	±DC/20Hz ~ 10kHz			
Input impedance	When Ux＞1V, Ri=Ux*10kΩ/V; when Ux≤1V, Ri≥1MΩ			
Output signal	DC 0-5V, 0-10V (only for power supply DC 24V)	DC 0-20mA, 4-20mA	True RMS DC 0-5V, 0-10V (only for power supply DC 24V)	True RMS DC 0-20mA, 4-20mA
Power supply	DC 12V, 24V	DC 12V, 24V	DC 12V, 24V	DC 12V, 24V
Accuracy	0.2%F.S.	0.2%F.S.	0.2%F.S.	0.2%F.S.
Load capacity	5mA	6V	5mA	6V
Response time	≤250ms	≤250ms	≤250ms	≤250ms
Temperature drift	250*10-6/℃	300*10-6/℃	250*10-6/℃	300*10-6/℃
Static current	≤34mA	Output 0-20mA: ≤34mA Output 4-20mA: ≤38mA	≤30mA	≤40mA
Isolation features	Isolation between input and output, output terminals provides power supply			
Isolation voltage	DC 1.5kV, 1min			
Work temperature	-25~+70℃	-25~+70℃	0~50℃	0~50℃
Storage temperature	-25~+70℃	-25~+70℃	-25~+70℃	-25~+70℃
Input/output isolation capacitance	-	-	6pF (below 1kHz)	6pF (below 1kHz)
Common mode rejection ratio (CMRR)	-	-	160dB (under condition of 50Hz)	160dB (under condition of 50Hz)
Protection class	IP20			
Mean time between failures	＞50000h			
Housing material	Fire-retardant ABS			
Wiring	Terminal connection			
Installation	DIN rail (NS35/7.5, NS35/15, EN50022), or screw (M3) fixation			

Dimensional drawing (unit: mm) & wiring diagram:





Output: 0-5V



Output: 0-20mA/4-20mA

5. Hall Effect Voltage Sensor

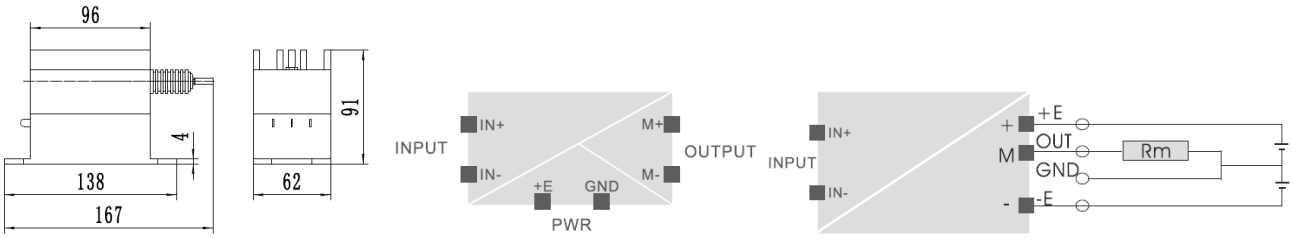
5.1 SKU: ATO-VOS-ACDC2000

Hall effect voltage sensor is a high voltage sensor with a measuring range from AC/DC 1500V to 2000V, output signal AC/DC ±50mA, work temperature -25~+70℃ and protection class IP20. AC/DC Hall effect voltage sensor has the hermetically sealed structure and can be used in harsh conditions.

Specification:

Model	ATO-WBV023YB08-DD	ATO-WBV023YB08-SS
Measuring range	AC/DC 0-1500V ~ 0-2000V	AC/DC 0-1500V ~ 0-2000V
Working range	AC/DC 0-2000V ~ 0-3000V	AC/DC 0-2000V ~ 0-3000V
Turns ratio of coil	10000:3000, 10000:2000	10000:3000, 10000:2000
Coil impedance	1.8kΩ+R1 (primary external resistance)	1.8kΩ+R1 (primary external resistance)
Zero current offset	When primary voltage VN=0, maximum value: ±0.3mA	When primary voltage VN=0, maximum value: ±0.3mA
Output signal	DC 50mA	AC/DC ±50mA
Power supply	DC 24V	DC ±12V, ±15V
Accuracy	1.0%F.S.	1.0%F.S.
Linearity	≤0.1%	≤0.1%
Load impedance	150Ω	150Ω
Response time	≤200μs	≤200μs
Temperature drift of current offset	＜±0.3mA, maximum value: ±0.5mA	＜±0.3mA, maximum value: ±0.5mA
Power consumption current	10mA+IM (measuring current)	10mA+IM (measuring current)
Isolation features	Isolation between input, output and power supply	Isolation between input and output, output terminals provides power supply
Isolation voltage	Between the primary and secondary circuit: RMS 10kV, 50Hz, 1min	Between the primary and secondary circuit: RMS 10kV, 50Hz, 1min
Work temperature	-25~+70℃	-25~+70℃
Storage temperature	-40~+85℃	-40~+85℃
Frequency band	DC ~5kHz	DC ~5kHz
Mean time between failures	＞50000h	＞50000h
Housing material	Fire-retardant ABS	Fire-retardant ABS
Wiring	Terminal connection	Terminal connection
Installation	Screw fixation	Screw fixation

Dimensional drawing (unit: mm) & wiring diagram:



Output: DC 50mA **Output: AC/DC ±50mA**

5. Hall Effect AC Voltage Sensor

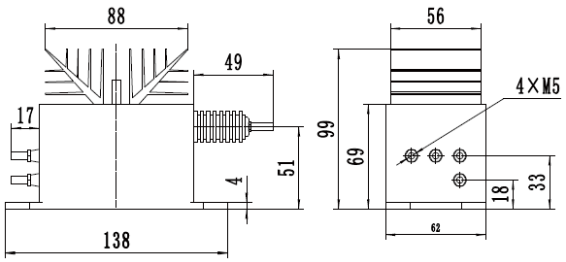
5.2 SKU: ATO-VOS-ACDC4000

Hall effect voltage transducer has a measuring range from AC/DC 100V, 500V, 1000V, 2000V, 3000V to 4000V, output signal AC/DC 50mA, work temperature -40~+85℃ and PBT shell. AC/DC Hall effect voltage sensor has good insulation character and hermetically sealed structure can be used in harsh conditions.

Specification:

Model	ATO-WBV023TK08-SS
Measuring range	AC/DC 0-100V ~ 0-4000V
Working range	AC/DC 0-200V ~ 0-6000V
Turns ratio of coil	20000:1000
Coil impedance	55Ω
Zero current offset	≤±0.2mA (Ip=0)
Output signal	AC/DC 50mA
Power supply	DC ±12V, ±24V
Accuracy	0.5%F.S.
Linearity	≤0.1%
Load impedance	80Ω
Response time	≤200μs
Temperature drift of current offset	＜±0.6mA (-40~+85℃)
Power consumption current	10mA+IM (measuring current)
Isolation features	Isolation between input and output, output terminals provides power supply
Isolation voltage	Between the primary and secondary circuit: RMS 12kV, 50Hz, 1min
Work temperature	-40~+85℃
Storage temperature	-55~+125℃
Frequency band	DC ~5kHz
Mean time between failures	＞50000h
Housing material	PBT
Wiring	Terminal connection
Installation	Screw fixation

Dimensional drawing (unit: mm):



Wiring diagram: